Revelations about tobacco

Hampton Brewer

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REVELATIONS ABOUT TOBACCO.

A PRIZE ESSAY

ON

THE HISTORY OF TOBACCO, AND ITS PHYSICAL ACTION ON THE HUMAN BODY, THROUGH ITS VARIOUS MODES OF EMPLOYMENT.

BY

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PREFACE.

THE following Essay, by HAMPTON BREWER, Esq., L.R.C.P., Lond.; M.R.C.S., Eng., &c., on "The History and Properties of Tobacco, and its Physical Action on the Human Body, through its various modes of employment," originated in the offer of a Prize of £50, by Sir Walter C. Trevelyan, Bart., for the best approved Essay on the foregoing topics, with the results of original investigations.

The medical gentlemen who kindly undertook to decide on the merits of the competitive compositions, viz., Dr. Copland, F.R.S., author of the "Medical Dictionary," &c., &c.; Dr. Hardwicke, Medical Officer of Health for Paddington; and Dr. James Edmunds, were unanimous in the opinion that the Essay which is now offered to the public, was entitled to Sir Walter's generous prize.

There are topics in the Essay, which, on the ground of expediency, some may doubtless think, would have been better passed by in silence; but that would not have comported with the design of the donor, who—with the knowledge that from smoking there are results especially direful, as well to individuals as to posterity, which ought, without hesitation, to be adverted to—was prompted to offer *a reward* for the most faithful exposition of the various ways in which the poisonous agency of Tobacco operates, in preventing the maturation of the human family, to that elevated physical, social, and religious culture, which it ought to be the ambition of mankind to attain, from the Throne down to the humblest subject in the realm!

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A PRIZE ESSAY

ON THE HISTORY OF TOBACCO, AND ITS PHYSICAL ACTION ON THE HUMAN BODY THROUGH ITS VARIOUS MODES OF EMPLOYMENT.

MAN in ministering to the gratification of his senses, usually has recourse to the three following methods:—

First. He partakes of things necessary to his existence.

Secondly. He resorts to something wherewith to assuage dull care, and drive harassing reflections into oblivion. Stimulants bring about this desired end.

Thirdly. He seeks to increase his animal enjoyments, by making an addition to his natural desires. Hence recourse to narcotics. Tobacco, which is a member of this class of substances and the most largely used, will constitute the basis of this Essay.

Among all substances either beneficial or prejudicial to himself, which man employs, tobacco cannot be said to hold a position second to any. This herb is used to an extraordinary extent at home and abroad, chiefly on account of its narcotic influence. With respect to all other narcotic substances, the quantity used sinks into insignificance in comparison with that under consideration.

The question is manifestly one which demands serious investigation, in order to ascertain whether a substance which is so extensively used, is a source of good or evil to the human family. With these introductory remarks, I proceed to consider the history, constituent principles, and physical action of tobacco.

Dr. Pereira says:—"The word Tobacco is probably derived from

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Tabac, an instrument used by the Americans, in smoking the herb; some derive it from Tobago, one of the lesser Antilles; others from Tabasco, an island in the bay of Campeachy; others again from the circumstance that the herb is wrapped up for use in a dry leaf which forms a sheath or envelope, and this kind of sheath is always called Tabacos by the Caribbeans."

Whatever the derivation of its name may be, there can be but little doubt about the origin of the plant.

The whole genus to which tobacco (*Nicotiana tabacum*) belongs, possesses stimulating narcotic properties. It is a member of the order *Solanaceæ*, which, although including among its genera the harmless potato and tomato, must rank as a dangerous assemblage of plants. Even the potato (*Solanum tuberosum*) possesses narcotic properties which are only rendered inert by cooking.

Tobacco is an annual plant, with a large, fibrous root, and an erect, round, hairy, viscid stem, which branches near the top, and rises from three to six feet in height; the leaves are numerous, alternate, sessile, and somewhat decurrent, very large, ovate-lanceolate, pointed, entire, slightly viscid, and of a pale green colour. The lowermost are often two feet long, and four inches broad. The flowers are disposed in loose terminal panicles, and are furnished with long, linear, pointed bracts, at the divisions of the peduncle. The calyx is bell-shaped, hairy, somewhat viscid, and divided at the summit into five pointed segments. The tube of the corolla is twice as long as the calyx, of a greenish hue, swelling at top into an oblong cup, and ultimately expanding into a five-lobed, plaited, rose-coloured border. The filaments incline to one side, and support oblong anthers. The pistil consists of an oval germ, a slender style longer than the stamens, and a cleft stigma. The fruit is an ovate, two-valved, two-celled capsule, containing numerous reniform seeds, and opening at the summit.

The tobacco crop is considered one of the most exhausting to the soil, from the amount of mineral constituents it absorbs during growth; the proportion of ash amounting to as much as about twenty per cent from the dried leaf. It requires a soil moderately damp, for it is subject to a disease known as "Firing," brought about either by extreme drought or wet. In this disease the leaves perish in spots, and are perfectly unfit for commercial purposes.

Humbolt, in his Personal Narrative, says:—"The tobacco plant has

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been cultivated from time immemorial by the natives of Oronoko; still it does not appear to have been known to Europeans prior to the discovery of America by Columbus, who is stated to have found the chiefs of Cuba smoking cigars in 1492" (*Irving's History of the Life and Voyages of Columbus*). Nevertheless, Dr. Pereira considers it not improbable, from the opinions of Pallas, Rumphius, and Lauzoni, that the Asiatics were acquainted with it long before that time; but on the other hand it is not at all probable that from this latter source it was introduced into Europe. From America it was brought into Spain and Portugal, and from the latter place, Joan Nicot sent the seeds or plants into France, about the year 1560. Twenty-six years after this date, in 1586, Sir Francis Drake brought it into England, and through the practice of smoking it by Sir Walter Raleigh and other courtiers, the custom soon became common.

Although tobacco is now grown in most parts of the world, it is from the United States of America that we get our chief supply: Virginia being the most celebrated for its culture.* In South Africa large portions of ground are occupied by it; and a relative of mine, who has lately returned from that continent—having lived there seventeen years, informs me that although the demand there is excessive, the supplies are quite equal to it. The amount imported is comparatively *nil*. He states that the Caffres grow a tobacco peculiar to their soil, the class of which he could never clearly make out. In Asia the growth of tobacco has spread over a large portion of the continent; and in Europe it has been raised with success in almost every country, especially Hungary, Germany, Flanders, and France. In England its cultivation is restricted to half a pole, no more being allowed to be grown in any Botanical garden, or elsewhere, for Excise reasons.

* Dr. Joel Shew, an American writer, says:—"There was one very amusing occurrence which every one will recollect, of the times in which tobacco was introduced into England. In the beginning of the seventeenth century, the early planters of Virginia were nearly or quite, all single men. They considered themselves as merely transient residents of the colony, and their habits became dissolute. As a remedy for this evil, the company in London determined to transport a number of young ladies to supply the planters with wives, the very best means certainly that could possibly be devised. But it was singular enough that these young ladies should be made things of merchandise. 'A cargo of these fair creatures,' we are told, 'was accordingly dispatched, and was received with the greatest delight and enthusiasm by the planters; but the wary merchants at home had taken care to make their consignment a mere mercantile transaction, and each young lady was obliged to find a lover who would give an hundred and twenty pounds of tobacco in exchange for her fair self, to pay the expenses of the voyage.' Such a speculation as this would, as a matter of course, prove abundantly successful."

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The tobacco of commerce, as we get it in England, comes in two distinct forms, viz., unmanufactured or leaf, and manufactured.

1. Unmanufactured tobacco, is that which in former times was imported in the form of carrots, made by depriving the leaves of their midribs, and tying them up tightly together in bundles, with strong grass. This plan has been abandoned; and now the dried leaves are packed together irregularly. Our chief supplies are from the United States, and are known by the names of the States where they are grown.

2. The manufactured varieties include all those prepared for smoking, chewing, and taking in the form of snuff. Manufacturers divide smoking and chewing tobaccos into two kinds, called "cut" and "roll" respectively, and these are known as canister or knaster, shag, twist, negro-head, and cavendish.* Canister is the dried leaves coarsely broken. Shag, the leaves simply moistened, compressed, and cut into fine threads. These kinds are used principally for smoking, though by the poor often also for chewing.

The four last named are formed by twisting, rolling, or spinning the leaves, moistened with molasses or syrup, and then pressing them into lumps or sticks, for the use of smokers and chewers. The latter employ them all as inclination dictates.

I have briefly noticed the varieties of manufactured tobacco used by the smoker and chewer: it still remains to examine how snuff is prepared, and what are its varieties. In the first place, the dried

* But few persons have any conception of the potent nature of this class of tobacco. In this as well as in other modes of preparing the weed for use, there are different degrees of pernicious principles.

This is easily ascertainable by applying a small quantity of the leaf to the tongue. But as the power of any poison loses much of its *perceptible presence* by repeated recourse to it, so with tobacco: those who begin with that which is mild, will soon crave for that which is strong, and by degrees cavendish and negro-head—terms that describe two forms of preparing this seductive and dangerous kind of drug—eventually become the favourite fume and quid, to the greater injury of the stomach and associated organs, into which it insinuates its influence, as with the silent approaches of a snake. But when the hag dyspepsia sets up her gloomy throne in the stomach of the smoker, she dispenses her withering influence throughout the whole of the bodily frame.

In other things it is said, to be forewarned is to be forearmed, but tobacco becomes so dominant in its influence, that the will loses its power, mental vision is obfuscated, and, when too late, the day is rued which prefaced a course of folly and infatuation which led to such disastrous results.

> "After a tempest, when the winds are laid,
> The calm sea wonders at the wrecks it made."
> So when health is gone and reason on her throne,
> Amazed, men see the mischief they have done.

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tobacco leaves, cut in small pieces, are sprinkled with water, or with salt and water (which prevents the leaves becoming mouldy), and laid in heaps, where fermentation soon commences. This is allowed to go on from one to six months, during which time ammonia, with more or less nicotine, is evolved at first, and afterwards water and acetic acid. The tobacco thus fermented is ground to powder, either in a mill or with a pestle and mortar. In this state it is fit for commerce as snuff, though often it is placed in boxes and sprinkled again with salt and water, when it again ferments slightly, and gives the snuff a pleasantly pungent odour. Snuffs are often variously scented to suit the diversity of olfactory choice. Sal ammoniac, hellebore, and veratria are sometimes added to snuffs, the two last named being excessively powerful and dangerous errhines. [Note A.]

There are two varieties of snuff, moist and dried. Rappees or moist, are prepared from the moist, soft, and succulent parts of the leaves only, and include French, Strasburg, and Russian.

The dried snuffs are prepared for the most part from the mid-ribs and fibres of the leaves, which are dried by heat preparatory to grinding. Welsh, Scotch, and Irish snuffs come in the category of dried. What is known as "brown Scotch snuff" is, I believe, simply Scotch snuff moistened after having been ground.

The *active principles* of tobacco appear to depend upon three substances, a volatile alkaloid, a volatile oil, and an empyreumatic oil.

The liquid volatile alkaloid (to which the name Nicotia or Nicotine has been given) is colourless, with an acrid smell and acrid burning taste, and has more or less of an oily nature. It is an extremely poisonous substance, one drop being sufficient to kill a large dog, and its vapour is so irritating that it is difficult to breathe in a room in which one drop has been evaporated. It acts with rapidity and somewhat after the manner of prussic acid. The poison exists not only in all parts of the plant, but also in the smoke given off during the process of burning. Fire does not destroy it.

The concrete volatile oil, known as tobacco camphor, also exists in all parts of the plant and in the smoke. It is evidently one of the ingredients to which the usual effects of tobacco are due, as when taken internally it produces giddiness, nausea, and sometimes vomiting; although it exists in the minutest quantity in the leaves, only two grains being obtained from one pound of leaves. But it is upon such small quantities of chemical ingredients, that the action and peculiarly

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sensible properties, of some of our most powerful medicines depend; for instance, the leaves of digitalis contain less than one per cent. of digitalia, the alkaloid to which its properties are due, and it is believed that as little as one sixteenth of a grain would produce symptoms of poisoning in the adult.

The empyreumatic oil is, as its name implies, produced during the burning of tobacco in the pipe or cigar. It is this that gives the well-known brown colour to pipes that have been much used. It is acrid and disagreeable to the taste, narcotic and poisonous; one drop applied to the tongue of a cat brought on convulsions, and in two minutes death. The Hottentots are said to kill snakes by applying the end of their wooden pipes to their tongues; the reptiles perishing under its influence as instantaneously as if killed by lightning, but it does not possess the same power of paralysing the heart as nicotia. It is this oil which is supposed to be "the juice of cursed hebenon," spoken of by Shakespeare as a "distilment;" its effects are thus described by him:—

"Sleeping within mine orchard,
My custom always of the afternoon,
Upon my secure hour thy uncle stole,
With juice of cursed hebenon in a vial,
And in the porches of mine ears did pour
The leprous distilment: whose effect
Holds such an enmity with blood of man,
That, swift as quicksilver, it courses through
The natural gates and alleys of the body;
And with a sudden vigour it doth posset
And curd, like aigre droppings into milk,
The thin and wholesome blood: so it did mine;
And a most instant tetter bar'k about,
Most lazar-like, with vile and loathsome crust
All my smooth body."—*Hamlet.*

And now, having glanced at the main features in the history and chemical constituents of tobacco, I must endeavour to answer the two following questions:

First, What are the general physiological effects brought about by the use of tobacco? and

Second, What are the different ways in which tobacco may be employed, and the special effects that may be produced by it?

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In small doses tobacco causes a sensation of heat and dryness of the mouth and fauces. By repetition, or in larger doses, it acts as a diuretic, and sometimes causes diarrhœa, nausea, and vomiting, with a sensation of giddiness and depression; but its most remarkable effect, and that for which it has been most frequently employed in medicine, is its power of producing relaxation of muscular fibre. In excessive doses its effects are of the same kind, though magnified greatly in degree. It produces extreme languor, the pores of the skin emit a cold clammy perspiration, entire loss of, or double, vision, excessive depression of the vascular system (the pulse being almost imperceptible), trembling of the limbs, convulsive movements, threatening paralysis, and death.

I will give you in detail, in illustration, some of the symptoms I have enumerated, by relating the effect that smoking once had upon myself, although I am well aware that mine is by no means a peculiar case.

One evening, during the time of my sojourn in London as a medical student, I was seated at the fire-side with two habitual smokers, and at their instigation, joined them in the act of smoking. At first it had rather a pleasant soothing effect, but the taste I disliked exceedingly. Having finished my pipe, I laid it aside, and we chatted together for a short time: when, quite suddenly, my salivary glands poured out an excess of saliva; at the same time I felt a peculiarly distressing sinking sensation at the pit of my stomach, with an odd creeping all over my body, and my skin was covered with a cold perspiration. I felt frightened, and rose to go to bed, but faltering in the attempt, my companions who discovered it caught me, or I should have fallen on the floor. I fancied I was dying, and found it quite impossible to lift my hand to wipe my face. After lying on my bed for some time I recovered slowly, and can truthfully say that I have not touched a pipe since, nor do I ever intend to do so again. I think it right to add that I had not taken any spirits or beer prior to smoking, so that the effects produced were solely caused by tobacco.

In answering my second question, I remark that the uses of tobacco may be divided into two primary heads.

First, It is used medicinally; and

Second, As a luxury, or rather, as a means of satisfying one of man's unnatural cravings.

Its use for medicinal purposes is very limited, as in many cases its

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poisonous influence has been so serious, that in reality the remedy was worse than the disease.

The remarkable power of relaxing muscular tissue possessed by tobacco, first brought it into use as a medicine, and it was principally employed in the reduction of strangulated hernia, and in colic and obstinate constipation. For the same effect it has been used in cases of tetanus, epilepsy, hydrophobia, cases of dysuria, spasmodic stricture and spasm of the neck of the bladder. In each of these classes of cases its use has been accompanied with doubtful success. Sir J. McGrigor says, "that in the advanced stages of tetanus the tobacco clyster has no effect." Mr. Curling, on the other hand, observes, "that more has now been adduced in proof of the efficacy of tobacco than can be advanced in favour of any other remedy yet resorted to. I have not," he adds, "succeeded in finding a single case in which, being fully and fairly tried before the constitution had given way, it has been known to fail."

Mr. Earle (*Med. Chir. Trans.*, vol vi., page 82) has published several cases in illustration of its efficacy in spasmodic stricture.

It has been sometimes used as a substitute for blood letting. Dr. Pereira says, "I tried it somewhat extensively a few years since as a substitute for bleeding in inflammatory diseases, but it produced such distressing nausea and depression, that it was with difficulty I could get patients to persevere with its use. I did not find its antiphlogistic powers at all proportionate, and eventually I discontinued its employment." Tobacco has been used as an anodyne, and recommended by Dr. Fowler as a diuretic in dropsies, but Dr. Pereira considers it far inferior in this capacity to several other remedial agents in the materia medica.

Topically, Dr. Veitch (*Med. Chir. Trans.*, vol. xvi., page 356) recommends the infusion as an anodyne and sedative application in gouty and rheumatic inflammation of the joints, and sclerotic coat of the eye; whilst an ointment of tobacco has been used in cases of porrigo and other skin diseases, as also in some obstinate ulcers. But its application to abraded surfaces is extremely hazardous, and has been attended in some instances with violent, and even fatal, results. Mr. Weston (*Med. Chir. Trans.*, vol. xiv., page 305) has related a case in which the expressed juice of tobacco was applied to the head of a boy, aged eight years, for the cure of tinea capitis. Death took place in three hours and a half after the application.

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It is a tolerably uniform prevailing notion among the lower classes of society, that tobacco checks bleeding, and assists the healing process of wounds.* With the former of these ideas I partly agree, but I believe it acts more in a mechanical way than from any peculiar blood-checking property of its own; its numerous fibres aid the formation of a clot, the multiplication of points of contact being a favourable condition for the coagulation of blood. With the latter opinion I do not coincide, and certain I am that its application to wounds is often the cause of serious and alarming symptoms, as the two following cases will illustrate. In each of these cases I have but little doubt that its poisonous action would have been greatly aggravated, had it not been removed when it had only been applied for three quarters of an hour, and one hour, respectively. I shall introduce these cases exactly as they occur in my note-book.

The first case occurred on November 19th, 1865:—

"I was summoned from my bed this morning to see a boy, thirteen years of age, who had fallen on a piece of iron, whilst at work at a forge, cutting his chin to the bone, to the extent of about two inches. I noticed directly that my little patient was deadly pale: his skin felt cold and clammy, with copious perspiration. His parents stated that he suddenly complained of feeling sick and giddy, and soon after vomited freely; he then became unconscious, in which condition I found him. His pulse was quivering and very feeble, and his pupils

* At the meeting of the British Association in Bath, two medical gentlemen were promenading with linked arms, one of whom had a slinged arm. "This," said the other, "is my friend Mr.———, who would attack the devil, if he were to meet him, with a cigar in his mouth." After the usual salutations,—"What has happened to your friend," it was inquired, "to cause his arm to be slung?" "He has unfortunately punctured himself with his lancet." "Is he a smoker?" "He is." "*Then, in proportion to his indulgence in that custom he will retard the process of healing.*" "You are right there," was the candid rejoinder. Not only should this fact be universally made known in the interests of sufferers, but the reason also should be explained. One of the physicians referred to, some years ago made some valuable microscopic discoveries on the effects of the fumes of tobacco on the blood of a smoker. In blood drawn from his arm before smoking, healthy globules were observed in the coagulum. He was bled again after smoking, but the blood was more fluid, and did not coagulate. Consequently, the health-indicating globules were absent.

It is therefore manifest that through ignorance the healing of wounds is greatly protracted, by those who in affliction, to deaden sensibility, fly to tobacco. Thus, in the aggregate, instead of mitigating pain, smoking greatly adds to its amount by lengthening its duration. Nor is this all. Those whose sole means of subsistence is the labour of their hands, are more frequently maimed than others; therefore, their loss of time, and the expense of a tedious process of healing, is a far more serious matter, than to the classes above them. For their sake in particular should the retardation of the process of healing through smoking, be made known.

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quite insensible to light. For a moment I attributed these symptoms to fright and pain, but upon removing a kandkerchief which was tied round his head, I quickly discovered their real cause, for applied to the wound was about a quarter of an ounce of tobacco, most thickly saturated with blood-clot. This I directly removed, and washed the wound freely with cold water, administering every ten minutes small quantities of brandy and water; at first he failed to swallow it, but in a short time I managed to get down a little with the greatest difficulty. For some time I felt very unsanguine about his recovery, but within two hours the violent symptoms one by one began to disappear, and in the end everything progressed satisfactorily."

The second case was less severe, though alarming enough to make one dread more and more an agent so variable in the amount of mischief it may produce.

"March 27th, 1867. To-day my attention was called to a case in which a woman had applied tobacco to a severe cut across the muscles at the ball of the thumb. She stated that it was bleeding very profusely, and she did not know how to stop it. Her husband (an inveterate smoker) came into the house at this moment, and said directly, "Put some tobacco to it," which she did. About an hour after, I happened to be passing her door, and was requested to go in and see her, as she had been suddenly seized with sickness, giddiness, faintness, and numbness of her hand and arm. She stated that she had been feeling perfectly well till about half an hour ago, when these unpleasant sensations came on by degrees, and she feared it was the cut in her hand that caused them all, or else the tobacco. Her pulse was very feeble, and her skin cold and perspiring profusely. I removed the tobacco from the wound, and in a few hours she was herself again. The bleeding had been most effectually stopped until I removed the tobacco, when it began again slightly. In this case there was no insensibility."

I feel, from the consideration of the above cases, coupled with the ideas expressed by medical men generally, of its doubtful action, that I am justified in discarding tobacco from my category of remedial agents, and applying my attention to remedies more stable in the amount of good that may be expected from them. To bring a patient quickly under the influence of tobacco, who has been habituated to smoking it, would necessarily be most difficult, while in one unaccustomed to its use, its poisonous action might in most cases be speedily produced.

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Tobacco, therefore, as a remedy, should be employed with the greatest wariness, or had better not be thought of, as the amount of the good it may effect, is as doubtful as that of the harm it may occasion.

My second primary heading of the uses of tobacco, viz., its consideration as a luxury, may be subdivided into three secondary heads, or, in other words, man seeks to appease his unnatural cravings for tobacco in three ways; viz.:

1st, by chewing; 2nd, by snuffing; and 3rd, by smoking; but the two first-mentioned modes of employment occupy a very insignificant place in comparison with the third; still, the effects brought about by each, as in its uses in medicine, coincide in kind though they differ in degree. Indeed, it is certain that the essence of tobacco, whether it be taken into the system either by chewing, snuffing, or smoking, cannot be otherwise than deleterious.

This was proved a short time since by a case at St. Bartholomew's Hospital, where Mr. Paget removed the lower jaw of a sailor, who, having suffered for some time from tooth-ache, had been in the habit of putting tobacco in the hollow of his tooth; this set up inflammation of the periosteum of the jaw, and finally decay of the bone, necessitating its removal.

It is really remarkable, taking into consideration the extensive consumption of tobacco, how few persons are able distinctly to state the effects it has upon them; the kind of pleasure its daily use gives them; why they began, and for what reason they continue its indulgence. Let the consumer of tobacco ask himself these questions, and he will be astonished to find how far from satisfactory his answers will be. Few have thought much on these points, or cared to analyse their sensations, whilst under its narcotic influence; or if they have analysed them, have liked truthfully to tell in what way it affects them.

In England we find that the *chewing* of tobacco is principally carried on by sailors, as *smoking* on board ship is often forbidden and always dangerous; while *snuffing* is expensive and the narcotic influence is less. Still this disgusting habit is not solely confined to sea-faring men.

Chewing, coming less frequently under our observation, we are not so competent to speak of its effects, which are generally supposed to be similar to, but slightly less powerful, than those occasioned by smoking.

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The poisonous empyreumatic oil, formed only by the burning of tobacco, is absent from the quid as it is chewed and turned over in the mouth; and probably this, in conjunction with the fact that the juice less easily enters into the system, than the tobacco vapour, renders chewing less powerful in its narcotic influence than smoking. On the other hand, it must be borne in mind that chewing is by no means harmless, as the annexed case, supplied by a member of my own family, testifies:—"Some years ago, I was summoned," he said, "by a man on horse-back, to go directly to see a gentleman farmer who lived seven miles distant. He was an habitual chewer, and it was stated by the messenger that he had swallowed his quid and his friends were afraid he was dying. I started directly, and rode as quickly as possible to the house, but my journey was of no avail, the sufferer—a young man previously in good health—was dead before I arrived."

It may, perhaps, be argued of this case, that it is one of such rare occurrence, that it hardly deserves a place in this essay, yet as chewers are always liable to such an accident, it is considered worthy of record.

Chewing undoubtedly also gives rise in many cases, yes, in all where it is extensively carried on, to dyspepsia; but it is to the condition of the gums and lips (especially the lower) that I want to draw attention, as I have noticed the same appearance—in a lesser degree—of the lips of all those who chew to any extent, as that which I have taken the following case to illustrate:—

A patient, an old man, came to me with all the symptoms of extreme indigestion; but besides this, his gums and lower lip had really the appearance of being rotten, resembling very closely a case of mercurial salivation. The mucous membrane was everywhere inflamed, in places detached, hanging in shreds, and destroyed in patches of different sizes, by ulceration.

His history ran thus: for some time he used to smoke, but finding it often difficult in his occupation (that of shepherd) to get a light for his pipe, he took to chewing. If he left off his tobacco for a short time, his lips and gums got well, but as soon as he returned to his bad habit, so surely did the penalty follow; yet, strange to say, although he is perfectly convinced of the cause of his complaint, he will not be persuaded to forsake it.

Snuffing is a habit disgusting in itself, but one which is carried on to a considerable extent, not only in this country, but in almost every

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other. It seems to be one in which the female part of our population think they may safely, in fact have a right to, indulge, as we find snuff employed almost as frequently among women as men. This, of course, applies principally to the lower classes, although not confined to them.

Its effects may be divided into topical and remote. Snuff, in those unaccustomed to its use, increases the secretion of nasal mucus, and causes sneezing, and its habitual use blunts the sense of smell. Abernethy used to say, "Snuff fuddles the nose." It must act in this way: a moist condition of the Schneiderian membrane (or that membrane which lines the inside of the nose) is necessary to the sense of smelling. Everyone while suffering from "a common cold in the head," during its first stage, knows how his faculty of perceiving odours is either rendered imperfect or entirely lost; this is due to a decrease of the secretion of mucus within the nostrils. Now the use of snuff, although at first possessing the power of increasing this mucus, at length by its constant application to the delicate nasal mucus membrane, causes irritation, then thickening and alteration of its secreting surface, thereby permanently lessening the secretion of the mucus in which particles of odour must in all cases be dissolved, before they can be immediately applied to, or affect the olfactory nerves, and by them be conveyed to the great nerve centre.

I have already mentioned, that following the continued use of snuff, there is a lessening of the natural secretion of nasal mucus, but the snuff-taker says: "Why, it is to moisten my nose that I take snuff, how then can it lessen the secretion?" It is the natural secretion that is lessened, and the nose which at the commencement of the use of snuff required one pinch to cause it to pour forth an abnormal amount of secretion, now requires four, five, or even more. [Note B.]

But the injury produced by snuffing does not stop at the destruction of the office of the olfactory nerves—which as Mr. Reynolds, in one of his interesting letters to Dr. Lee, says; "are not only intended to inform us of the properties of surrounding objects by means of the organs of sense, but also to guard us against the application of anything hurtful, as monitors, teaching us to avoid it"—for by the Schneiderian membrane are absorbed and directly carried to the brain the harmful narcotic properties of the tobacco, causing not only severe irritability of that organ, but also, as Dr. Conquest expresses it, "every variety and degree of nervous derangement, from depression of spirits, to palsy, apoplexy, and insanity."

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If snuff get into the throat it gives rise to a feeling of acridity, producing coughing, and sometimes nausea and prostration of strength. Dr. Pereira says it did so in himself Lauzoni states that an individual fell into a state of somnolency, and died lethargic on the twelfth day after taking too much snuff.

Dr. Cullen ascribes dyspepsia and loss of appetite to its use, and Dr. Prout observes: "The severe and peculiar dyspeptic symptoms sometimes produced by inveterate snuff-taking are well known, and I have more than once seen such cases terminate fatally with malignant disease of the stomach and liver." Undoubtedly I can testify to the truthfulness of the first part of Dr. Prout's statement. Very often am I asked to administer remedies to disordered digestive organs, which are brought into this condition by the use of snuff. This obstinate condition of dyspepsia is produced by the snuff passing back into the pharynx, and then being taken into the stomach, either with the saliva or food.

A woman is continually coming to me in search of relief for most severe pain in her stomach after taking food. The quantity of snuff she consumes per week is excessive. Her nose is a perpetual dust-bin. Certain it is that her complaints are due to the snuff, for if she discontinue its use for a time, she is free from pain.

Snuff, when used, passes undoubtedly, like any other foul dust, into the lungs. A friend of mine told me of a case in which he found snuff after death in the lungs of an inveterate snuff-taker. The young man died of consumption, the end of which my friend believes was surely hastened by the large quantity of snuff he consumed. It is in part through this channel that snuff produces its remote effects; by absorption (from the mucous lining of the air-cells) of the poisonous properties of the tobacco into the blood, whereby they are carried throughout the general circulation and become visible in the different parts of the organism.

Yet snuffing, with all its faults, is the most harmless way in which tobacco may be employed, and for the following reasons: Snuff, during its process of fermentation, gets rid of a large portion of its volatile alkaloid and oil, while the empyreumatic oil of course is absent, therefore getting rid of a certain proportion of the poisonous constituents of tobacco, *a fortiori* it must be less powerful in its baneful effects than smoking, which retains them all; and chewing, which retains two of the three. [Note C.]

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Smoking,—I have called the third way in which man satisfies his desire for tobacco. It is a luxury which is far more frequently and universally sought after than either of the two preceeding; the pipe or cigar being employed not only by our male population, but often our women are taken by surprise enjoying a whiff in some secluded corner.

The different modes in which tobacco is smoked are peculiar. I will mention one described to me by an uncle of mine (who lived for seventeen years in Africa) as employed among one of the tribes of Kaffirs.

He says: "A Kaffir takes his knife from his pocket and with it cuts a round hole, of about an inch and a half diameter, in the turf; he next procures a piece of round straight wood, of two feet long and an eighth of an inch diameter (or thereabouts), with this he bores a hole more or less obliquely under the turf, towards and communicating with the circular hole he has before cut, which forms the bowl of his pipe, if so it may be called. This done, he places his tobacco in his rudely and readily constructed pipe, lights it and then goes to the other opening about eighteen inches from the bowl; to this he applies his mouth, lying at the time flat on his face; here he lies and smokes to his heart's content, and when his pipe is empty refills it." This is a method of smoking which I have never before heard or read of.

I shall now endeavour to state as clearly as I am able, the opinions which I entertain of the effects of smoking upon the system of man, and explain fully my reasons for entertaining these opinions. As Akenside said—

> "Different minds
> Incline to different objects, ours pursue
> The vast alone, the wonderful, the wild."

The habit of smoking is increasing daily, and boys as well as men are frequently met, with pipes in their mouths; the smoker is the rule, the non-smoker the exception; therefore I think it is high time that they, who know the injury that may be produced by this fascinating habit, should rise in a body and endeavour by all the means in their power to repress it. [Note D.]

Whenever I meet a man with a pipe in his mouth I cannot help asking myself the following questions:—Is smoking injurious or not? What may be said in favour of it, and what against it? My answer to the first of these questions, will be plain from the opinions I offer on the second; I shall, therefore, in answering them, reverse their order.

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The inhalation of the fumes of burning vegetables, both for causing inebriation and for medicinal purposes, seems to have been very anciently practiced. Herodotus tells us that both the Babylonians and Scythians intoxicated themselves by this means, and Dioscorides and Pliny speak of the efficacy of smoking tussilago in obstinate cough.

It is medicinally that the smoking of tobacco may sometimes be employed beneficially. It is useful in some cases of asthma and spasmodic cough—probably arising from some slight nervous irritation at the top of the wind-pipe—where its anti-spasmodic properties come into action. But its good effects are by no means universal, as I have found the cough sometimes greatly aggravated by its use. Dr. Pereira says: "My own observation is unfavourable to the use of tobacco-smoke, which I have repeatedly found bring on convulsive cough and spasmodic difficulty of breathing, in persons afflicted with chronic catarrh.*

"In chronic bronchitis, I have sometimes found it give relief to those who could endure its nauseating effects. In this class of cases it acts in two ways: firstly, through its anodyne properties; and secondly, by the warmth of the smoke acting as an emollient. Toothache and neuralgia, *i.e.*, tic-doloreux, I have also seen alleviated by it when other means have failed. This is all I can say in its favour; and even this I say with hesitation, as I have often seen its use in these cases followed by evil consequences, I therefore should never recommend its employment except as a last resourse, when other remedies have entirely failed."

Now in what ways may it be considered hurtful to the human frame? How does it affect the different functions of the body? and there is not a single function of our highly organised frame that it does not affect. Its evil effects on every vital organ of man are palpable, if we will only remove from our eyes that obstinate blindness, that dangerous prejudice, which keeps us from perceiving that a sound physical constitution, and the habit of employing any poison (like tobacco) in however small quantities, are incompatible the one with the other. I will first speak of its effects on digestion.

Tobacco-smoke we all know is a most irritating vapour, which, when drawn into the mouth, comes in contact with its mucous lining

* A Cheltenham physician once said to a smoking patient, who was suffering from asthma, "I want to keep your lungs quiet, but you irritate them by the fumes of tobacco. You cannot be benefitted by medicine if you continue to smoke."

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and with the orifices of the salivary ducts, causing the glands situated about the jaw, in young smokers, to secrete an abnormal quantity of saliva, which (to use their own expression) is "spat" away by them; and it is this fact which is looked upon by many as the part of smoking which impedes digestion. One may often hear the non-advocate say to the habitual smoker, "Do you spit when you smoke?" The latter answers truly in the negative; then says the former, "smoking injures you but little," for he forgets that one of two things must then occur, he must either swallow his spittle, or his salivary glands have ceased to pour forth an excess of saliva. The non-smoker frames his argument in this way: What is the purpose of the saliva? When you spit, are you not throwing away what nature intended to perform a most important part in digestion? he overlooks the fact that when the smoker spits, it is not pure saliva that he throws away, but saliva plus certain poisonous narcotic principles contained therein, and it had better be cast away, than taken into the stomach and absorbed in its poisonous condition. Evil consequences must be produced either way; for if the saliva be swallowed, you not only get dyspepsia set up by the presence in the stomach of the poisons with which it is saturated, but also the dire poisonous effects of tobacco; whereas if the saliva be thrown away, you only get the former of these results, brought about by the absence from the stomach of the saliva which is requisite for digestion. Therefore, I say, if you smoke, spit: "for of two evils choose the lesser." [Note E.]

I believe the injury to digestion is caused by the constant application of the smoke of tobacco to the mucous membrane of the mouth, which becomes more or less thickened, and such an amount of irritation is kept up, that the presence of food in the mouth is not sufficient stimulus to cause the glands to secrete: hence the starchy principles of it—such as bread, potatoes, and other vegetable matter—instead of being converted into sugar by the saliva and rendered fit for absorption into the system, pass scarcely altered into the stomach, and there act as any other indigestible material would, causing flatus and constant dyspepsia; for it is in the mouth that the saccharine parts of our food are rendered fit for assimilation by the saliva, and if they pass thence without it, they remain undigested, as the other juices secreted by the alimentary canal act but slightly on them.

Rarely do we see inveterate smokers spit to any extent, and this is because the salivary glands require a stronger stimulus *even than tobacco,*

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to cause them to secrete profusely. This is just what we might expect; and I may take as a good illustration of the theory, the effect which the habitual use of purgatives has on the alimentary canal. At first, a small dose of a mild aperient will cause the mucous lining of the intestines to secrete freely, after a while a larger dose of the same medicine is required to produce the desired effect, and lastly a different and more powerful drug is needed. I ask, therefore, if the mucous membrane of the intestines should thus become habituated to the constant use of irritants in the form of purgatives, why should not that of the mouth, which is a continuation of the same membrane, become affected in the same way by the constant irritation of tobacco? [Note F.]

You seldom find the smoker eat much without drinking, and this is another proof that the natural fluid, the saliva, is absent, the second purpose of the saliva being to moisten the food during mastication, and lubricate its passage from the mouth, through the fauces, to the stomach.

One other circumstance may be noticed as regards digestion influenced by smoking, viz., that you rarely find the tongue of the inveterate smoker healthy; it is seldom free from fur (though I have occasionally noticed it preternaturally red, and more or less glazed), and a coated tongue is a clear indication of a disordered stomach. [Note G.]

Dr. Copland says, "Smoking weakens the digestive and assimilating functions, impairs the due elaboration of the chyle and of the blood, and prevents a healthy nutrition of the several structures of the body."

Dr. Prout says: "Tobacco disorders the assimulating functions in general, but particularly, as I believe, the assimulation of the saccharine principle. But it happens with tobacco as with deleterious articles of diet, the strong and healthy suffer comparatively little, while the weak and predisposed to disease fall victims to its poisonous operation. Surely if the dictates of reason were allowed to prevail, an article so injurious to the health and so offensive in all its modes of employment, would speedily be banished by mankind."

There is but little doubt that different constitutions are affected to different extents by the use of tobacco, but I firmly believe that every man, whether he be of a strong or delicate constitution, cannot employ tobacco without some day suffering for his folly; still you will always

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hear the smoker say, "Smoking does me no harm;" but I say, "Praise not the day till the night comes."

I was but lately consulted by the parents of a young man as to the best mode of treatment for their son, whom they feared was getting consumptive. His appetite was failing, he was often sick, and most rapidly losing flesh; his heart acted feebly and irregularly, and the action of his lungs was imperfect. He had taken tonics, cod-liver oil, and every kind of nourishment, but all were of no avail: he got worse. He was an excessive smoker, having been so for five or six years, and had continued his habit during the whole time he was under treatment. I gave it as my unconditional opinion that it was smoking which caused all his alarming symptoms. He left it off, and is now daily improving in health and strength, upon the same treatment which before had failed to do him any good. I doubt not that, had this youth continued smoking, he would have died at no late period, of consumption. He was as surely, by smoking, laying the foundation in himself for that fearful malady to build upon, as you are in yourself, my smoking reader. No surer way is there of favouring a disposition to consumption, than by producing what is commonly called indigestion. No more favourable *fallow*, I repeat, is there for sowing the seeds of consumption, than the lungs of the dyspeptic, and there can scarcely be a more certain method of deranging the digestive organization, than by smoking tobacco.

Uncontrolable diarrhœa is another of the ill effects common to the tobacco smoker; due probably in part to derangement of the function of digestion, and partly to relaxation of the muscular coat of the intestines.

An old patient of my father's continually suffers in this way, and distressing indeed is his condition. He always has a pipe in his mouth, and can scarcely be roused from a state of profound stupor. I can pass to and from his room without his taking the least notice of me, and it is with difficulty he can be persuaded to move from the fire-side to take his meals.

The distinctive olive-green complexion and cachectic look of some, yea, of most, smokers, shew clearly that some peculiar principle is generated in their system. This appearance I have noticed in most persons who have been accustomed to smoke tobacco for any length of time, and it is probable that the agent, whatever it may be, is generated during either the process of digestion or assimilation. Dr. Prout

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expresses his opinion on the subject as follows. He says: "Some poisonous principle, probably of an acid nature, is generated in certain individuals by the abuse of smoking, as is evident from their cachectic looks and from the dark and often greenish-yellow tint of the skin."

Dr. Copland also speaks of "a pallid and sallow hue of the surface," as a result of smoking.

The sclerotic coat (or what is known as the white) of the eye of smokers, also often participates in this sallow appearance, and looks yellow, almost as if jaundiced. Its vessels are also frequently seen large and tortuous.

I shall here intoduce a list of fifty cases of smokers of different ages, who have smoked for different durations of time, and who consumed per week different quantities of tobacco. I shall also set down the appearances of the throat which I noticed in each individual case.

Hospital reports can testify to the number of diseases of the throat that occur in smokers, brought about by the use of tobacco.

No.	Name of Smoker.	Age of Smoker.	Time since commencement of habit.	Quantity of Tobacco smoked per week.	Appearance of the Throat, Tonsils, and Fauces of Smoker.
		years	years.		
1	Morgan Edwards ...	34	7	1 oz.	Soft palate and tonsils appear dry and congested.
2	Rees Jones...	68	48	½ qr.	Enlargement of vessels of tonsils; uvula relaxed, resting on tongue; whole of fauces congested.
3	James Thomas	26	14	1 qr.	General congestion of all vessels at back of throat.
4	John Davis	28	15	1 qr.	The whole of back of throat and mouth red, vessels enlarged and distinctly seen, running irregularly in the mucous membrane, which is mottled with yellow spots
5	Theophilus Edmunds	25	9	1 qr.	General and increased vascularity of back of throat.
6	Richard Henwood ...	26	8	½ qr.	General and increased vascularity of back of throat.
7	Owen Jenkins	66	50	1 qr.	General increased vascularity and dryness of tonsils and pharynx.
8	John Thomas	73	50	1 qr.	Excessive vascularity of back of throat and ulcerated spots on tonsils.
9	Sarah Morris	43	8	½ qr.	Congestion of the whole of back of throat.
10	Thomas Morris... ...	44	10	½ qr.	Congestion of the whole of back of throat.

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No.	Name of Smoker.	Age of Smoker.	Time since commencement of habit.	Quantity of Tobacco smoked per week.	Appearance of the Throat, Tonsils, and Fauces of Smoker.
		y ars	years.		
11	Thomas Jones	27	10	½ qr.	Vessels of tonsils and soft palate enlarged and tortuous, with several yellow spots.
12	Benjamin Lear	25	4	½ qr.	Slight varicose enlargement of vessels of tonsils and pharynx.
13	William Marchant ...	50	30	½ qr.	Extreme congestion of whole mucous covering of back of mouth and throat.
14	Henry Hale	51	35	1 oz.	Relaxation of all parts constituting the fauces.
15	James Smith	34	18	1 qr.	Universal congestion of soft palate, tonsils, and fauces.
16	Thomas Russell ...	53	40	½ qr.	Universal congestion of soft palate and tonsils, the former especially.
17	George Marchant ...	55	33	1½ qr.	The whole mucous lining of posterior of mouth, and tonsils, and pharynx, of a peculiar sallow colour, in which there is a net-work of varicose vessels.
18	William Thomas ...	28	13	1 qr.	Extreme vascularity of back of throat, amounting to congestion.
19	Hugh Peters	35	3	½ qr.	Congestion of vessels of tonsils and pharynx.
20	Thomas Church ...	43	20	½ qr.	Congestion of vessels at posterior of mouth and throat. He is very subject to quinsy.
21	Thomas Harris	26	10	1 qr.	Enlargement of tonsils; general relaxation of whole back of throat.
22	John Thomas	21	4	½ qr.	Slight unusual fulness of vessels of soft palate; a sallow appearance of the whole back part of throat.
23	Isaac Clark	79	50	½ qr.	Patches of congestion on a sallow ground, over whole of pharynx, tonsils, and fauces.
24	Thomas Ormond ...	44	30	1 qr.	Congestion of tonsils, soft palate, and pharynx; soft palate covered with minute vesicles. Very subject to quinsy.
25	David Morris	24	15	1 qr.	Congestion of tonsils and fauces, very marked
26	Robert Powell	18	6	1 qr.	Slight congestion of tonsils and soft palate.
27	John Jones	22	10	1½ qr.	Congestion of tonsils; great enlargement of all vessels at back of throat with yellow ish spots.
28	James Evans	20	6	½ qr.	General sallowness of throat with enlargement of vessels of soft palate.
29	Robert Phillips	18	6	½ qr.	Slight congestion of vessels of pharynx and soft palate. Has been subject of late years to sore throat.
30	Thomas Lloyd	22	2	½ qr.	Very slight perceptible change in throat.
31	Joseph Williams ...	18	8	1 qr.	Relaxation and dryness of pharynx and soft palate.
32	David Williams ...	68	40	½ qr.	Slight congestion of whole posterior of throat; mucous membrane appears yellow in patches.
33	Alfred Dando	25	10	1½ qr.	Excessive congestion of whole back of throat; several little ulcers on tonsils and soft palate. Is subject to quinsy.

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No.	Name of Smoker.	Age of Smoker.	Time since commencement of habit.	Quantity of Tobacco smoked per week.	Appearance of the Throat, Tonsils, and Fauces of Smoker.
		years	years.		
34	Hugh Jones	54	40	1 qr.	Enlargement of tonsils; patchy congestion of soft palate and pharynx; inflammation and ulceration of lips.
35	Rees Morgan	52	40	½ qr.	Redness of soft palate and pharynx, with small vesicles interspersed.
36	Daniel Williams ...	60	40	1 oz.	Very slight congestion of any part.
37	John Oliver	62	50	1 qr.	Great congestion of whole of back of throat, with sallow patches here and there and little ulcers.
38	Jonah Mayor	21	10	½ qr.	Slight redness of fauces, with little vesicles scattered over them.
39	Lemuel Rees	23	5	1½ qr.	General congestion of whole back part of throat, with patches here and there, of a sallow colour; tonsils enlarged and covered with little vesicles.
40	William Davis	48	26	1 qr.	Considerable congestion of vessels of tonsils and pharynx.
41	John Connell	47	35	1 qr.	Considerable congestion of tonsils and pharynx, with several ulcers scattered about. Subject to frequent and severe attacks of sore throat.
42	William Powell ...	52	40	1 qr.	Whole back of throat relaxed and a little œdematous; vessels enlarged and tortuous.
43	Henry Curtis	25	5	1 oz.	Slight appreciable congestion of throat in patches.
44	John Lewis	64	40	1 oz.	Slight general congestion of throat, with œdema of uvula and tonsils.
45	James Harding... ...	68	50	½ qr.	General congestion of whole interior of mouth, fauces, and pharynx, with patches of sallow colour; tongue exceedingly tremulous.
46	James Hickey	19	6	½ qr.	Considerable congestion and enlargement of vessels of back of throat, &c.
47	Samuel Hill	50	35	1 qr.	Excessive congestion of roof of mouth, fauces, and pharynx.
48	Frederick Blackmore	25	15	½ qr.	Enlargement of tonsils; general relaxation of whole back of throat, &c.
49	John Brittan	55	40	1 qr.	All back part of throat of a peculiar yellow colour, with varicose condition of vessels
50	Edward Hicks	30	10	½ qr.	Sallowness of throat; tonsils enlarged and congested, covered with little vesicles; inflammation of lips.

[The manifestations of fumes of tobacco enumerated in the foregoing table, brings to recollection many cases of a corresponding character to which the writer's attention was called by Dr. Drysdale, among patients at the Metropolitan Free Hospital. But it is not possible with language, to give the reader any idea of the actual condition of the throat and fauces through the operation of tobacco upon them. They were sickening to behold; and when such a condition arises, no cure can be effected unless the victims refrain from smoking. But rarely will they consent to be healed on such terms!!!]

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It will be seen that the appearances of the throat in the fifty cases of smokers above alluded to, participate more or less of the same characteristics.

The vessels, in most cases, appear gorged with blood; the mucous membrane is really passively congested, or in a state of what may be termed chronic congestion. In several there are the same sallow appearances that occur in the skin, and in some others, the evil has gone on so far as to produce ulceration, similar to that which we see on the lips of many smokers and chewers.

From the condition of the throat, we may fairly and very reasonably infer, that the mucous membrane of the stomach is, in a greater or lesser degree, in the same state. How, then, can dyspepsia be wondered at?

Tobacco stands in the class of narcotico-acrid or narcotico-irritant poisons, *i.e.*, it unites irritant with narcotic properties; hence follows the reason why congestion or irritation of the parts should supervene, when that, or anything containing poisonous active principles, have been repeatedly applied.

Again, I say, don't smoke! because smoking has an injurious effect upon the teeth. Not only does smoking destroy the colour of the teeth, but it also renders the enamel excessively brittle and liable to chip with but little force. The enamel is the preservative covering to the crown of the tooth, and if this be cracked or removed, it exposes the parts below to the air and particles of food, which often cause decay of the tooth, then toothache, and lastly, loss of the tooth. I have noticed this brittle condition of the enamel in the teeth of nearly all habitual smokers who have consulted me, and I have frequently found them break from the grasp of the instrument when I have been extracting teeth. Common sense might lead one to expect such a result. Heat applied often to a dish or plate renders it brittle and easy of fracture, and this being the case, it is reasonable to suppose that the enamel of the teeth (which in chemical composition bears a close analogy to porcelain) would become brittle by the constant application of the hot smoke, or in fact, anything at a temperature so much above that of the natural heat of the mouth.

We see then, that smoking destroys the instruments we employ in mastication, which process is so necessary to the healthy performance of the function of digestion; in fact, a never failing consequence of unmasticated food taken into the stomach, is, sooner or later, indigestion.

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My next question is, what effect has smoking on the nervous and vascular systems?

In those unaccustomed to its use, its effects are only too plain, and often painful to witness. It produces or gives rise to symptoms exactly parallel with those which I set down in the earlier part of this essay, as being produced by large or poisonous doses of tobacco. All the languor and tendency to fainting which we find in the one case, are demonstrated palpably in the other: in fact, perhaps the narcotic influence of tobacco is more readily and extensively produced by smoking than by any other method. Dr. Marshall Hall mentions a case, in the *Edinburgh Medical Journal*, which almost terminated fatally: it was that of a young man who, for his first essay, smoked two pipes, and I have already mentioned the effects which a single pipe had upon myself. Upon those not used to smoking, it acts primarily, as an exciter; and secondarily, as a powerful depressor of the nervous and vascular systems.

Narcotics in general act so as first to exalt nerve force, and subsequently to depress it.

In habitual smokers, tobacco no doubt for a time produces a remarkably soothing effect on the brain and the whole nervous system. The pleasure seems to arise from a species of intoxication. A smoker in trouble flies to his pipe for solace; in it he finds "a sovereign balm for every wound."

> "I pity those who seek no more,
> Than such a thing can give;
> Wretched are they, and poor, and blind,
> And dying while they live."

Smokers, after a time, cannot do without their pipe; it forms for them an almost indispensable companion. They are obliged to smoke a certain quantity before they have nervous energy enough to set about their daily work; to excite this the pipe at first succeeds, but at length a more direct stimulant is required, and alcohol in some form is resorted to.*

* That persons require drink when they smoke is clearly deducible from the following premises:—1st. The properties of tobacco in the form of heated smoke must necessarily create thirst. 2nd. The undue stimulation of the salivary glands by which saliva is drawn away and ejected, is another cause of thirst. 3rd. As smoking cannot prevent some part of the saliva, which is impregnated with tobacco, from passing into the stomach, the thorax and stomach would demand moisture for relief, except with those who have so depraved their nature as to destroy their natural instincts and sensibilities. 4th. The exhaustion which the waste of saliva and the

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The case of a medical friend affords a striking illustration of this effect of continued and excessive smoking.

The gentleman took to smoking when young, and to overcome its nauseating influence he had long to persevere. At length, however, he succeeded in his efforts, and became an inveterate smoker, so much so that he could do nothing until he had had his pipe: but this at last became insufficient stimulus for him, and he took to brandy drinking as an antidote to the pernicious effects of the tobacco, and by these poisons was slowly but surely killing himself, daily losing flesh, and looking like a walking corpse. At last he saw his folly and listened to reason, and by degrees left off the tobacco and brandy, and now uses neither. I met him a short time since and hardly recognized him, as he is now a moderately stout, healthy-looking man.

The constant employment of this nervous excitant cannot be carried on with impunity. It must cause a continual strain upon the nervous centres, and coincident with this, their waste. We cannot suppose that the brain and the general nervous system, in a natural condition, require external stimulus prior to performing their functions. No! The material which for a period stimulates at length depresses, and this languid condition of a smoker, which requires a pipe to brace him up for action—if I may use the term—is nothing more than a morbid state of his nerve centres, which he has brought upon himself, by what he thought his remedy, viz., smoking tobacco. Look at the hand of the man who has indulged for some time in smoking, and you will almost invariably find it unsteady. How constantly you may hear the smoker say, "Oh, I must have a pipe to steady my hand before I can do such or such a thing." I know a gentleman who always shaves with a pipe in his mouth, and if he is going to perform any surgical operation, he is obliged to have a whiff (as he calls it) before he commences. The shaky hand, I do not say, is by any means confined to smokers, for you also find it in persons who indulge largely in all stimuli, and frequently in those who employ none whatever; but in every case it is due to a weakening of the power which the will

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anti-vital power of the nicotine of tobacco produces, induces the smoker to seek relief by recourse to stimulating drinks. Thus it will be seen that tobacco is essentially a thirst-creator, and that it is the tobacco which demands the drink. Put out the pipe and cigar and you will be a stranger to thirst, except in hot weather, when the moisture of the body is drawn off by perspiration. Don't spit, you will not then require to drink except when you eat. Tobacco, pipes, cigars, ale, porter, and grog, are categorical constituents.

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ought to command over the members of the body, or in other words to a defect of the nervous influence.

A fine strong young man, a collier, once told me that for some time he was subject to paroxysms of extreme nervousness, so much so that often he would not go underground to his daily work because he had such a forcible presentiment that he should not again come out alive. "At last," he said, "the thought struck me that I had never felt so until I took to smoking; I gave it up and am now well, except a shaky hand, but this is getting better." This case is by no means unique—would that it were! Nervous fear is most common amongst smokers, and the more I study their constitution, the more I find this sad result existing. Many great smokers are almost afraid of their shadows, and startled at each sound with which they are unacquainted. At last, in many cases, the nervous irritability is carried so far as to produce true insanity. Tobacco smoking is believed (and with truth) by many medical superintendents of lunatic asylums, to be be the cause of bringing a large per centage of the inmates there. [Note H.]

Melancholia (a species of insanity of which extreme melancholy, and nervous depression, are the characteristics) I have found resulting from excessive smoking. I have a case now under my care in which the patient first exhibited want of memory, with extreme melancholy; then loss of reasoning power; next, inability to comprehend; and he now lives simply by instinct. Still, he sticks to his pipe!

I was much struck with the pithy manner in which an Irishman once told me how smoking affected him. I asked him if he ever noticed his hands tremble after smoking. He replied, "Aye, Dacter, and shure I do; there is a trembling comes over 'em whenever I smoke, and a grievous one too, and what's more, I can ate as much again when I don't smoke. And does yer 'onor think it does harm?" Yes, I said; then replied the other, "And shure, Dacter, then I plidge myself to lave off entirely from to-night."

But the influence smoking has on the great nerve centres, does not stop at the simply trembling hand—this is only the forerunner of a worse malady; it often runs on, almost before one is aware of it, into complete paralysis. Sometimes the victim loses the use of both legs, at others of an arm and a leg, at others of all his limbs at once, in fact, he has no power over any voluntary muscle of his body.

While I am writing this essay, I have under my care a middle aged man who is paying a heavy penalty for indulging in this foolish practice.

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This case began with trembling in the leg, this was heeded little; then came an attack of most excruciating neuralgic pain in the limb, which, after lasting twenty-four hours, gradually died off and left it useless. He has now no power over either of his legs, and cannot rise from his chair without help. He has been since boyhood a smoker. [Note I.]

I have another patient, a man sixty-eight years old, who has been suffering from shaking palsy for upwards of two years. He cannot keep either of his limbs steady for a minute at a time, nor even his head. He has smoked tobacco for about fifty years. [Note J.]

It is painful to reflect on the numerous cases of apoplexy and paralysis which are occurring in the present day. We do not find these complaints attacking simply aged persons, neither youth nor early manhood escape. There is no more likely remote cause of these deplorable nervous maladies, than tobacco smoking.

Defective action of the heart and disordered circulation, we find most frequently connected with apoplexy and paralysis; there is scarcely anything that affects the heart to so great an extent as tobacco. The effects come on so insidiously, that before the victim is aware, the mischief is often irreparably done. Again, the pleasures of the use of tobacco are so deceptive, that few will believe that the nervous shakings at first, will end in paralysis.

I wish to impress this forcibly on my readers, for it is every whit true. Many there are who, had it not been for the prejudice I have above described, had they listened to the voice of warning and desisted from their folly "while it is called to-day," would have been saved a miserable existence or an untimely grave.

Dr. Copland says: "Tobacco weakens nervous power, favours a dreamy, imaginative, and imbecile, state of existence." He goes on to say, the smoker "ultimately becomes partially, but generally paralyzed in mind and body, he is subject to tremors and numerous nervous ailments, and has recourse to stimulants for their relief."

That smoking impairs the memory is perfectly certain. Cases are frequently brought to notice where the memory seems dull, recollections of past circumstances indefinite, puzzled and confused, from its use. It causes an inability quickly to collect thought—sluggish circulation must necessarily obstruct fertility of imagination.

I recollect an instance which exhibits this in a very striking manner. The person of whom I speak has for twenty years spent

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much of his time with a pipe in his mouth. If you call upon him quickly for an answer, he cannot give it; he stammers and hesitates, his ideas seem muddled, but the reply comes in time correctly. I have often seen him put a thing down and five minutes afterwards forget where he has put it.

These results are what might be rationally expected, as relaxed energy of the heart must cause venous or impure blood to remain longer in the veins of the brain than it would do, if nervous power were not impaired; hence a sluggish performance of the duties of that organ. [Note K.]

One day upon meeting a man who I knew had been an inveterate smoker, I addressed him in the following way: "Well, George, where is the pipe?" "O sir!" said he, "I have nearly given up smoking." "How is that?" I inquired. "Well, sir," he replied, "I find it does me harm; my memory is leaving me fast, and my eye-sight too; I cannot hold my hand steady, and I am sure it is from the tobacco."

A fellow-student of mine, with whom I lived in London, invariably read with a pipe in his mouth, and the ill consequences brought about in his memory were plainly marked; after a hard day's reading, when I turned to ask him a few questions on his subject of study, his answers were always mystified and often most imperfect. I may add that this young man had natural ability and memory above the average, and he was brought into this morbid condition by tobacco smoking.

Yet the smoker urges that smoking gives fixity to his power of thought and aids him in study; but I am confident the healthy brain can require no such auxiliary—in fact, instead of producing the purported effect, it is a cause of versatility.

A peculiar power which smoking possesses—through, I think, its direct influence on the nervous system—is that of allaying hunger. I often hear a man say: "Give me my pipe, and I can do without my dinner." An Irishman, who formerly worked for my father, gave good proof of this satiating effect of tobacco.

Dennis O'Herne was a Roman Catholic, and on fast-days, or indeed whenever he could not get his meals in due time, you would see him draw from his waistcoat-pocket a short black pipe; after filling and lighting this, he would draw at it vigorously, until he had got up a large volume of smoke with which he would completely fill his mouth, retain it there for several seconds, moving his cheeks, apparently rolling it about all the time; at length he would expel it

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through his nostrils, whence it would curl as two horns. He would then put his pipe into his pocket and exclaim, "There now, yer 'onor, and shure that's as good as a male o' victuals."

This satiating effect of tobacco (if I may so term it) may be beneficially brought to bear as a weighty reason against smoking.

Anything that will act so directly on a nervous centre as to cause it to forget—so to speak—sensations transmitted to it from without, through the influence of the nerve cords, or on the distal extremities of nerve cords supplying an organ in which certain sensations are produced, so as to paralyse them, and thereby cut off the transition of those sensations to the nerve centres where they become appreciated, must in itself be a powerful sedative.

The effects of tobacco smoking, just alluded to, prove that it is capable of bringing about the ends above mentioned, and the habit of using an agent of this nature must be injurious; and what is more, it is setting up an abnormal condition of the nervous system, and annihilates the integrity of the organic functions, through which the Creator designs to produce the felicity of man. "Life," has been said by a great man, "to stand upon a tripod—the brain, the heart, and the lungs," and with what truth has it been said, for injure one of its feet and you will most certainly affect all. Injure a man's nervous system, and you will surely influence his heart's action.

I am at a loss to understand the rationale of the habit of taking a pipe directly after meals, so often practiced by smokers. Several persons who invariably do this, I have questioned closely concerning the utility of so doing, but the only answer I can obtain from one and all, is "that it is a habit." [Note L.]

The influence that smoking has over the heart is very marked; it acts on the great circulatory organ through the nervous system. The first effect is to accelerate the rhythm of the pulse, but to decrease its volume; the secondary to decrease both in a most palpable manner. Smoking also affects the regularity of the pulse, causing it frequently to intermit.

I have on record the case of a young man—not by the way an inveterate smoker, but one who smoked as a rule about two or three pipes a day—whose pulse after smoking one pipe, which occupied, perhaps, ten minutes, rose eighteen beats per minute. I have repeatedly counted his pulse after smoking, and it invariably rises about the same ratio per minute, after a single pipe; a second reduces it eleven beats per minute, below its natural standard.

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R. H., a strong-looking young Cornishman, came to me, complaining of "a severe oppression at his heart," which increased in the recumbent posture. Upon examining his heart, I found nothing organically wrong, but its action was feeble and fluttering, his pulse was only fifty-five beats of small volume per minute, and his hand was tremulous. He said he had never been able to find out the cause of his complaint. I told him it was the use of tobacco. He looked astounded, but since owned that he had always noticed his unpleasant sensations were increased after taking his pipe, but never paid any attention to it. [Note M.]

Henry Hale, an intelligent working-man, aged fifty-one years, gave me the following account of the manner in which smoking affects him, if he uses above a certain quantity per week. He has been in the habit of smoking thirty-five years. He said: "I first noticed that smoking did not suit me, when I was a young man; I found it shorten my breath, make my heart palpitate so much that I thought it would beat through my chest, and cause me to tremble from head to foot. I still stuck to it, in spite of all this, thinking I should get used to it, but I never did: and now, if I smoke any more than an ounce a week, it has just the same effect on me." I may add that this man's pulse is feeble, tremulous, and with not more than fifty beats per minute.

From the foregoing remarks it is obvious that the use of tobacco does affect the nerve centres and heart; it causes debility and impairment of the action of those organs, and consequently, through the loss of nerve force, there are imperfect circulatory efforts carried on by the heart. Although we find that smoking for a time exhilarates the nervous and vascular systems, when this, its primary influence, has passed off, depression—which causes a peculiar condition of nervous irritability—its secondary effect, becomes plain: and as its antidote, another pipe, or some form of stimulus is resorted to; and thus we often see the man who has for a long time given way to this pernicious habit, seldom, if ever, without a pipe in his mouth.

Another objection I raise to the habit of smoking is the frequent occurrence of cancerous affections of the lips and tongue following the use of clay-pipes. Dr. Prout says: "Great smokers, especially those who employ short pipes and cigars, are said to be liable to cancerous affections of the lips." I have undoubtedly seen cancer of the lips and tongue following the employment of clay-pipes, but never could trace it with perfect certainty as the result of cigars, but hope that I

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may, by the careful and constant examination of cases, eventually be able to speak positively on the point; nevertheless, I should strongly advise all smokers to desist from the habit, believing that it may be the origin of this dreadful disease. [Note N.]

Of one thing I feel certain, and that is that smoking often gives rise to inflammation of the lips and gums, and sometimes to ulceration. These are similar in character to the effects produced on the same parts by chewing, which I have mentioned before.

I was asked to give something to cure a smoker's lips, which were ulcerated in several places and swollen excessively. "I think, doctor," he said, "that it is brought on by smoking, but I can hardly believe that anything so simple can cause so bad a disease. Still, I smoke a great deal too much, I am sure (2 qrs. per week), but if I did not do this I should get too stout." [Note O.]

Here is a man continuing a habit which is undoubtedly the cause of this unsightly and painful condition of his lips, but he does not like to believe that it is so, although I told him I could do nothing for him until he left off his tobacco.

Again, excessive smoking is by some thought to excite a tendency to amaurosis, *i.e.*, imperfection of vision, depending on some change in the retina, optic nerve, or brain; and although I have never been able distinctly to trace it to smoking, I decidedly believe that it may generate this disease, as one of its chief causes of origin, is impaired or diseased nervous action. Of this ophthalmists have been pained witnesses. [Note P.]

It is an almost every-day occurrence to hear a smoker complaining of pain in his head, with what he describes as particles of black (muscœ volitantes) floating before his eyes.

Let me remind all smokers that this latter symptom, although not necessarily the commencement of amaurosis, is one of the first symptoms of that disease, and that, when it occurs, it should be looked upon as a warning of its possible advent.

It may not be improper to mention the following case as an objection to smoking, although the result was not due to the tobacco, but to the pipe.

Martin Rhys was proceeding towards home, on a Sunday night, slightly inebriated, with a long clay pipe in his mouth. The night was dark, he knocked his foot against a stone on the road, and fell forward on his face, breaking off the stem of the pipe, which passed

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into his soft palate just anterior and external to his left tonsil, proceeding outwards and backwards, until you could distinctly feel its one extremity situated deeply among the muscles arising from the mastoid process. My father was sent for, and with the greatest difficulty and aid of a long pair of forceps, extracted it. Slight hœmorrhage followed its withdrawal, which was checked by cold applications.

Here, O smoker! see a man brought to the brink of eternity by smoking: for close in the direction where the pipe stem passed, is situated a large artery, which, if wounded, would probably have caused this man's death, either by hœmorrhage at the time, or softening of the brain eventually, following the ligature of the artery to stop the bleeding.

A precisely similar case occurred in my uncle's practice, not four miles from the residence of my father. In this instance it was impossible to extract the piece of pipe through the mouth, my uncle consequently cut down upon it and withdrew it from between the muscles at the back of the neck, and happily the patient recovered.

The smoker says, directly, "But these accidents might have happened to persons carrying anything else in their mouths." I say, how often you meet men and boys carrying pipes in their mouths, and how seldom you find them with anything else; thus, indeed, we see, although it was not tobacco that caused these highly dangerous, and what might have been fatal, accidents, it was in reality smoking. Therefore, I say, don't smoke! don't smoke! Desist from this—what Mr. Reynolds most appropriately terms—"nature-disturbing, health-destroying practice."

I have left until last the consideration of the effects which tobacco smoking has upon the development of the body and the propagation of the human species.

It is not because these effects are in any way less numerous, less important, or less in degree, than those produced on the organs I have severally considered. Oh no! there is the most intimate connection between them; what affects the one indirectly affects the other. I have, in reality, now to consider the most painful and heartrending part of the subject.

As each day passes, more of the youth and even boys of our country are allured into smoking, and as this weakens their digestive and assimilating functions, and produces an insufficient supply of healthy blood, so, in the same ratio, does it arrest the development of the various structures of their bodies, causing the stunted growth and

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effeminate frame now so often seen. But oftentimes all the members of the body are checked *in an equal degree* and thus arise ill-proportioned and ungainly children.

The sensualist, instead of endeavouring to keep himself as nearly as he can to the model of him that was "created in the image of his Maker," recklessly indulges those passions which send him lower in the scale of creation than the brutes.

To those who know what the effects of smoking are upon the undeveloped physical and mental constitution, it is painful to witness the extent to which this injurious habit is practiced by the young of all classes. That this custom is, to an alarming extent, deteriorating the "Flower of the Nation"—the seed of the next generation—is obvious to every reflecting observer, but the *leaders of the people* are slow to exercise their reasoning powers in this respect, therefore arguments upon arguments fail to excite as much concern about the retrogradation of the human family, as would arise from a like condition in beasts of burden, the animals we eat, or even the canine race! If it were not so, how is it that the cause of deterioration is not nationally agitated?

That so it is, we have not been without evidence. With respect to calves, lambs, colts, puppies, and even pigs, through the observance of certain preliminaries, with almost certainty their life and health is calculated upon. And if any of their propagators were *allowed* by their proprietors to partake daily of any kind of poison, they would be regarded as semi-idiots, madly bent on defeating their avowed object.

Faithfulness constrains the appeal. In what light can intelligent beings regard themselves, who, to gratify their senses, disregard the life and health of offspring?

It cannot be denied that any substance which will either impede the natural flow of healthy blood, or prevent the due elaboration of that fluid, or impart to it any principles which will deteriorate it, must sooner or later, in a greater or lesser degree, check development, cause alteration in structure, or put an end to vital action altogether.

Tobacco, I have said in the early part of this essay, has not only the power of weakening digestion and consequently of impairing the due elaboration of chyle, but also of exerting a direct influence over the nervous system, so that, through those nerve centres, it impedes or interrupts the action of the heart, the forcing-pump, so to speak

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upon the regular and correct contraction and dilatation of which all parts of the body depend for their proper supply of nourishment. Therefore upon these grounds the habitual employment of tobacco must be, to an immense extent, calculated to stunt the growth, render the smoker unhealthy, and cause his death to occur many years prior to what it would have done had he abstained from the use of tobacco!

But worst of all are the effects which the use of tobacco has upon posterity. It is a degrading and an affecting thought that the employment of tobacco, not only injures him that uses it, but that by an unalterable law, it is visited on the next generation. Nor does it end there.

The consideration that smoking does superinduce disease and enfeeblement in children, should be sufficient inducement to avoid it by every one endowed with reason!

To a reflecting parent, any defect in structure, stamina, or intellect in offspring is distressing, when not traceable to vicious habits in those from whom they derive their being, but how greatly is the distress aggravated, when there is the constantly recurring recollection that this defect is of transmitted origin!

This is not a mere picture, it is a real fact. How can it be otherwise? A diseased father cannot produce a healthy offspring. The Scriptures tell us, "Every good tree bringeth forth good fruit, but a corrupt tree evil fruit." The inference is obvious.

I know a clever man, but an inveterate smoker, who has three sons; the eldest is tall and excessively dull in every way, the second is idiotic, and the third short, but of good ability. The youngest is ten years old, and although his parents are still young, (about thirty-five) they have never since had a living child.

In some cases we find the children of smokers cut off in their infancy. Although born to all appearance healthy, in a few weeks they begin to waste and die mere skeletons, a complete arrest of development occurs, or they sink under some infantile complaint, from a lack of stamina to bear up against it. Others live on a while, but never reach the age of puberty. If they do exist past this age, they are often stunted in growth, of delicate constitution, or in some particular, imperfectly formed.

The use of tobacco is also one of the most frequent causes of lost power in man. Dr. Copland truthfully and expressively says, "The tobacco smoker, especially if he commences the habit early in life and

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carries it to excess, loses his manhood." This is a delicate topic to touch upon, but I cannot refrain from testifying to the correctness of Dr. Copland's statements, from having such instances brought to my knowledge, and not to give prominence to the fact in this Essay would betray a want of faithfulness, although it may make the hearts of legions sad. [Note Q.]

I was once called upon to attend a young gentleman of good family, who was suffering in this way; he also had lost all control over the lower half of his body, and was in a most pitiable condition. He had always lived an idle life, and been a great smoker from boyhood. Each of these are results which might be looked for, when we think for a moment what a powerful depressor of all nervous energy tobacco is.

Few are the number of those who marry, who do not wish for a healthy progeny, and few are those who would not almost forego anything, rather than that their offspring should bear about with them, in their delicate constitutions, the reward of their sire's folly. I beg you, then, one and all, youths and young men, flee from the use of tobacco as you would from a whirlpool; shun it as a habit, the extremities of the evils of which you know not, for it is uncertain when these evils may arise in full force in your own persons, and remember that every time you smoke tobacco, to use a figure, *it is treacherously spinning an unseen web around you*, from which you will be unable to escape, and you may, when it is too late, find that you are a mass of unhealthiness, and be utterly incapacitated to answer one main end of your being, and be in danger of creating for yourself early days in which you will say, "*I have no pleasure in them.*"

And now I must needs stop. Here ends the consideration of my subject. [Note R.]

My Essay is imperfect in many respects, and very unequal to my own wishes. I have, however, carefully, minutely, and as far as my ability would allow, considered the history and properties of tobacco, and without prejudice weighed the effects it is capable of producing upon the human organism. It must be plain from the whole strain of these pages, that I am decidedly adverse to the use of tobacco as a medicine, and am even more so to the habits of smoking, chewing, and snuffing it. On the other hand, I grant that they may become pleasant vices, and, like all other bad habits, when once indulged in. be difficult to relinquish.

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"Habits are soon assumed, but when we strive
To strip them off, 'tis being flay'd alive;
Call'd to the temple of impure delight,
He that abstains, and he alone does right."
Cowper, ("Progress of Error.")

If, then, the use of tobacco is calculated to produce the evil consequences I have represented, why begin it? To those who have begun, I say, struggle with all your might to give it up? The proverb says: "He who masters his passions conquers his greatest enemy."

I cannot find more fitting words wherewith to conclude these pages on tobacco and its uses, than those of King James. He says of smoking: "It is a habit loathsome to the eye, hateful to the nose, harmful to the brain, dangerous to the lungs, and in the black stinking fumes thereof nearest resembling the horrible Stygian smoke of the pit that is bottomless."

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NOTES.

Note A. In a paragraph which appeared some time ago in the *Times* newspaper, it was stated that so extensively is the use of snuff diminished in Scotland, that all the commercial travellers together, do not take as many orders for that commodity as were formerly taken by one of their number, in that country. It is not at all improbable that the well-known, and distressing consequences which a popular preacher in Edinburgh brought upon himself, through snuff-taking, to which it was known he was much addicted, had something to do with checking this odious habit. The writer once received from a person who had for twenty-eight years titillated his nose with black rappee, a snuff-box full of that favourite preparation. He was induced to discontinue the dirty habit through reading the following sentence,—"Next to dying an unpardoned transgressor, I should shrink from the idea of being laid in my coffin with my nostrils charged with snuff."

Note B. These observations bring to recollection an interview with a physician, once of considerable eminence, but who through his addiction to snuff-taking, at the age of sixty, became an object of pity as to his personal appearance. His eyes answered the description which is given of the deluded opium smokers of China—weak and watery—his mind was feeble, and his inquiry solicitous about the safety of leaving off snuff-taking. "Do you think," he said, "that it would be safe to discontinue my habit? Might not secretion be stopped, and injury follow from that cause?" The only reply that could be given was, as a medical man, the answer to that question ought to be within your own mind. "I should like," he added, "for you to give me your opinion," at the same time shading his eyes with his hand, to exclude them from the rays of light.

Note C. Notwithstanding the fact, that in snuff there is a less *proportionate quantity* of nicotine, than in tobacco prepared for purposes of smoking and chewing, yet in the aggregate consumption, on account of the frequency with which ordinary snuff-takers apply it to the nose, as much and even a larger quantity of nicotine may be introduced into the system, and more serious consequences may arise from it. A young surgeon, in conversation with the writer, asked permission to take a pinch of snuff to relieve his confusion. This may be physiologically thus explained. A demonstrator in anatomy

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taking the brain which he had removed from the skull, said, "Through all these blood vessels, some of which are not larger than the hair of the human head, blood ought to pass every time the heart beats, but their healthy contractions depend on nervous power, and as tobacco weakens nervous power, they do not contract as they ought to do. There is, therefore, more blood than there should be in them, whereby the whole mass of brain is distended, which causes a pressure on its surface by the skull." Hence confusion, which can only be temporarily relieved by that which occasions it, and repetition increases the demand for snuff, and increases the confusion. Hence, too, the slavery which in many cases supervenes upon this habit.

NOTE D.—Reasons multiply for conducting a crusade on a broad platform against smoking. As the Essayist truly says, "Smoking is increasing daily." *Ergo,* Smoking may superinduce in others like diseases to those which have already been traced to this habit. Among these, and not one of the least, fatty degeneration of the heart, is pronounced as a categorical result. A minister of religion, in the metropolis, who has recently been expostulated with, on the impropriety of a teacher of the doctrines of Christianity fumigating himself and his study with tobacco, tells the sad tale, that he cannot write his sermon without a pipe in his mouth, and urges as a plea that he has fatty degeneration of his heart.

Query: If he had not caused heart disease through smoking, could he, by any possibility, derive relief from fumes of tobacco, or help in the composition of materials with which to "feed the flock" of which he is the avowed shepherd? Common sense supplies the negative reply.

Note E. The preceding remarks remind the writer of an interview which he once had with a young surgeon in Essex, of remarkably slender build, and exceedingly contracted face dimensions. The young gentleman stoutly averred that smoking did him no harm. He was politely reminded that there were indications of his suffering from indigestion, and a want of nutrition, and that the ejection of saliva was designed by the Creator to perform an important office in the process of digestion. This he repelled, but in so doing he made the following unwilling admission: "Some time ago," he said, "I had a severe attack of indigestion, and went to France for a change of air and scene. When I arrived there, I thought spitting when smoking might cause my indigestion, and I smoked without spitting, but suffered a great deal more than when I was at home, so I found it was not spitting that caused it." The essayist well explains how it was that the young surgeon's malady was aggravated. When one who has studied disease and its causes, betrays such ignorance, we cannot wonder that those who have not equal privileges fall into such errors.

Note F. These remarks are in precise harmony with ours in Note A. The analogy is complete, and should have a deterring effect on users of tobacco, as it unmistakeably shews, that the exquisite susceptibility of the nervous system

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gradually loses its perception of the presence of an enemy, which stealthily robs the body of one of its elements most essential for purposes of health and enjoyment.

Note G. To those who may think the author's apophthegm needless on their account, the following extracts from a report in *Public Health*, of a Conference by Members of the Harveian Medical Society, over which Dr. J. E. Pollock presided, on the Effects of Smoking among 200 out-patients at the Metropolitan Hospital, may be of service.

"Dr. Charles Drysdale made remarks based on the observation of about 200 cases of excessive smoking, among the male out-patients of the Metropolitan Free Hospital. The cases were thus chosen:—Persons smoking half-an-ounce of tobacco daily, were called great smokers, and the way in which the cases were examined was as follows—After asking the patient his name and age, he was asked how long he had been ill. The next question put was—"Do you smoke?" Then "How much?" Amongst those who had habitually smoked half-an-ounce of shag tobacco daily, the following symptoms were very frequently observed—habitual constipation, eructations, vertigo—in some cases diarrhœa, alternately with constipation—congestion of the fauces was, as observed by Mr. Solly, very frequently noticed. Palpitation of the heart;* sometimes irregularity of the pulse; habitual dread of change of temperature was frequently noticed; headache, various forms of dyspepsia, emaciation sometimes.

"Dr. Drysdale said, as far as these cases went, they tended to show that tobacco smoking was much opposed to nutrition, and consequently that it was one of the most injurious habits which the human race had in recent times contracted. He believed that there could not be the least doubt in the minds of all who would calmly take down, as he had done, cases of excessive smoking, that it was one of the most important factors of disease among the male sex at the present day, and he was convinced that it was one of the main causes that rendered the life of the female sex longer than that of males, as it was known to be in this country.

"Dr. Hardwicke said he thought that, as public men, the medical profession ought to speak out more boldly than they were wont to do, about the evils caused by tobacco smoking. From his own experience he would say that there were no perfectly healthy men who smoked. He believed that smoking caused many severe diseases. There is a great difference in the longevity of the sexes, which is chiefly to be attributed to smoking. The male population of France are said to be much deteriorated in strength from the almost universal habit of smoking among them.

"Dr. Curgenven said he had observed very grave affections result from

* As a proof of the frequency of heart affections, the number of patients relieved at the Hospital for Diseases of the Heart, 67, Margaret Street, W., during the week ending the 15th February, 1868, was 117.

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tobacco smoking, and had seen cases where great cigar smokers had nearly sunk under the effects of an extra indulgence in the habit. He cited the case of a gentleman, to whom he was obliged to administer strong coffee and other stimulants, in order to arouse him from the state of nervous depression into which he had sunk after prolonged tobacco smoking.

"Dr. Menzies observed, that whilst he was surgeon in the army in India, he had observed grave diseases both among the officers and men, to arise from tobacco smoking.

"Dr. Broadbent had no doubt whatever that excessive smoking produced many forms of disease, such as constipation.

"Mr. Hutchinson had recently pointed out the effect of smoking in producing amaurosis, which was however only one of the numerous nervous affections to which it might lead."

Note H. There will be no difficulty in obtaining confirmation of this opinion by any one who will get the permission of a visiting magistrate to make investigations in a lunatic asylum. No medical superintendent of such institutions ought to be pronounced eligible for the office, who himself uses tobacco in any form. Such only will be unlikely to withhold it from the inmates.

Note I. Not long ago, an admiral, whose nephew's legs were paralysed, took him to a physician for consultation. While in the waiting-room, he perused a copy of the *Anti-Tobacco Journal* in which the modus operandi of tobacco in producing paralysis was explained, and on entering the consulting-room he said, "I have brought my nephew, whose legs are paralysed, to see if you can do anything for him; but from observations which I have been reading in the *Anti-Tobacco Journal*, I think smoking has caused paralysis." "Let me see him," said the doctor; and he instantly confirmed the admiral's opinion.

Note J. Dr. Ledward, of Manchester, once told an audience at the close of an Anti-Tobacco lecture in that city, that he had several patients, strong-looking men, who were obliged to hold the seats of chairs with both hands, and he told them that no medicine would do them good unless they left off smoking, which they did and all of them recovered their lost muscular power.

Note K. This is precisely the effect of an advanced stage of narcotism which we described in Note B, as the result of snuff-taking. How then can it be surprising that on such brain-ravages, loss of memory supervening in lunacy should occur late in life? A member of the Society of Friends, in Northampton, who heard some remarks about the effects of snuff, said to the writer, "Would thou be willing to repeat thy statements to our medical men at our asylum?" "Most gladly would I avail myself of the opportunity," was the answer, and together we went. The result of the interview was corroboration of all that was said. The Friend in question, shortly after, when in London,

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visited the female ward of the Surrey Asylum, and the Matron, on arriving at the padded room, said, "We never use this room now. Some time ago it was agreed by the medical men to keep the patients without snuff, and since then we have never had any unmanageable cases among them."

Note L. There are some things belonging to smoking which smokers alone understand. Many years ago, Dr. Carpenter, of the London University, in the course of conversation, said, "Tobacco, tea, coffee, wine, and malt liquor, are all in the same category." To which it was replied, "I must be allowed to put in an exception to that, Doctor Carpenter; and while I would not be rude to you, I must add, as you have not smoked yourself, you do not understand the subject." To which he said, "You are right in that respect, and I should like to hear all you know about it. If you will deliver a lecture, I will come and preside over the meeting." The arrangement was made, and at the close of the lecture, with the late Dr. Hodgkin at his side, the lecturer said, "These gentlemen did not know what I should say to-night, but in them you have confidence, and I know they will endorse all my opinions;" which they did.

There is, in fact, no nearer comparison between the commodities, as they are usually employed, which Dr. C. categorised with tobacco, than there is between fire and water. Primarily, there is no correspondence between their constituent principles; and secondarily, the poisonous matter in tobacco is incapable of dilution, which is not the case with either of the other commodities. A Member of Parliament, whose lost energies were restored through partial abstinence from smoking, subsequently said at his tea-table, "Tobacco and tea and coffee are all alike." "No, sir!" said the writer. If Mrs.——— will send for another tea pot, and in that put an equal weight of tobacco with that she has of tea in this, and pour on it an equal quantity of boiling water, and she and you and all your children were each to take a cup full of it, with milk and sugar, if it did not kill you it would make you all helplessly drunk." "That is not the way we use tobacco," he replied. "I know it, sir, but in this way I could convince you that there is no admissible *comparison* between tea and tobacco."

Note M. Dr. Cooke, of Trinity Square, relates that he knew a painter whose hand became so tremulous that he could not draw a straight line with his brush, but on reliquishing his pipe, his hand regained its wonted power. The name is legion of those who inflict on themselves habitual tremulousness and appear amazed on being told the actual cause. Nor is it needful, for the sake of those only that have not had the advantages of medical education, to adduce evidence of muscular trembling through smoking. Unhappily medical students, to a large extent, smoke themselves, and take no pains to inquire into the consequences of this habit, until they inflict heavy penalties on themselves. A medical practitioner in London, made the surprising declaration, that he had laid awake for hours in the night trembling like a leaf, and feared to look

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outside his bed curtains, lest he should see hobgoblins in his room, and that he never suspected the cause until he heard an Anti-tobacco lecture.

Note N. Remarkable cases of cancer in the tongue are recorded in the Trevelyan edition of the late Professor Lizars's *Practical Observations on the Use and Abuse of Tobacco*, which cannot be too extensively read by cigar and pipe smokers. A young Spaniard, with a hole in his tongue, said to a physician of our acquaintance, "You may cut a piece out of my tongue or burn it with caustic, but I can't give up smoking ! !"

Some years ago, Dr. Paton, of Paisley, said to a lecturer on the tobacco question; "I have a cold and cannot come to your lecture to-night, but you may tell your audience that I have cut out many cancers in lips since I have been in practice, and in every instance the patients were smokers. I will give you a copy of the *Medical Times and Gazette*, and there is a paragraph which says, 'Twenty-nine cases of cancer in the lip have recently been cut out in the Cancer Hospital. Some of the patients were females, and it was ascertained that they were smokers.'"

"The journals," says a French writer, "have informed us during the last few days, of the death of M. Enrico Martini, who played a large part in the events of 1848; after which Charles Albert sent him as a minister plenipotentiary to London, Venice, Gaeta, and Rome. Enrico Martini was deputy to the Italian Parliament. The *Paris Journal* informs us that M. Nelaton had, last summer, cured M. Martini, with the aid of an excessively painful operation, which was perfectly succesful. The disease was 'cancer in the tongue.' The clever practitioner had fixed it in a vice, and cauterised it afterwards. The cure was accomplished, the Count returned to Italy and led his usual life, which was very active. M. Nelaton had forbidden him the use of a cigarette, under pain of a relapse. M. Martini followed the prescription for six months, then, thinking he had got rid of his terrible enemy, he re-took the cigarette, and died suffering the most dreadful agony. Has this need of a commentary?"

Note O. If smoking has the effect of preventing an increase of flesh, which in a great majority of cases it undoubtedly has, no wonder need be excited at the small features and slender bodies of English young men in the present day. But what will the next generation be? is an inquiry that demands the concern of all those who would have their renown as fine Englishmen perpetuated. At the close of a lecture on the Tobacco Question, in the Temperance Hall, Bolton, Mr. Fergusson, M.R.C.S., said, "I believe no one who begins smoking before manhood ever makes a strong healthy man. Boys stunt their growth, they stunt their physical vigour, they stunt their intellect, and as the lecturer has adverted to the transmittal effects of tobacco, what kind of posterity is to be expected from them?"

Note P. "Tobacco-smokers must look to their eyes. Proofs are accumulating that blindness, due to slowly progressive atrophy of the optic nerves, induced by smoking, is of frequent occurrence. In a volume of the "London

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Hospital Reports," Mr. Jonathan Hutchinson has narrated several cases of amaurosis, the histories of which go far to establish the fact, that in each case the blindness was brought on by that rapidly increasing, and, as it appears, baneful habit; and in the *Medical Times and Gazette*, Sept, 4, the same distinguished surgeon has described another striking case of "tobacco amaurosis, ending in absolute blindness, induced in eighteen months." The patient, aged fifty, a railway clerk, enjoyed good sight until January 1867, and excellent general health, with the exception of a single attack of gout. He is a remarkably intelligent man; was in former life a great reader, and, says Mr. Hutchinson, "he tells me that since his affliction, he has been made acquainted with the particulars of many similar cases. I wish to ask especial attention to the fact that the man was smoking heavily, whilst taking no kind of alcoholic stimulant. I have met with several cases in which this history was given, and am decidedly of opinion that the injurious influence of tobacco is to some extent counteracted by alcohol." We can readily assent to Mr Hutchinson's opinion, which, indeed, does but confirm the proverb, "One evil brings another;" for we have long been convinced that great tea and coffee drinkers may persist in their habit the more recklessly the more freely they indulge in drinking alcohol also."—*Medical Mirror.*

Note Q. The delicacy of this topic must be admitted, but until human minds are more pure than that of the HOLY CONTRIVER of the laws of propagation, no consideration ought to be allowed to prevent a faithful exposition of a cause which strikes a blow at the root of His designs in relation to those laws! He who said, "BE FRUITFUL AND MULTIPLY, AND REPLENISH THE EARTH," knew what was indispensable in the physical frame for compliance with that mandate. To have withheld this topic would have rendered the Essayist unworthy of reward. For he is guilty of an act of censurable delinquency, who allows the opinion of mankind to outweigh his conviction of duty, in relation to his knowledge of things pertaining to the dignity of his race.

Note R. "Here ends," says the author, "the consideration of my subject." This observation brings to recollection an interview in the Faculty Hall, Glasgow, where the writer met by appointment, the Medical Society, for the discussion of the Tobacco Question. At the conclusion of that discussion, in replying to the various discussionists, it was said, "Gentlemen, not one of you have adverted to the worst effect of the custom of smoking." "What is that?" said the President of the Faculty. "The transmission of the prostrating effect of tobacco to posterity, sir! No one can prostrate his own energies by the narcotic poison of tobacco, and become a parent in that condition, without transmitting to his offspring the effects of his vice." "This is a new sentiment," said that gentlemen, "but I will endorse it, and it is our duty, as a medical body, to take up this subject, and do all in our power to carry out the suggestions which have been submitted to us. The fact is, we have allowed the custom of smoking to increase around us without thinking anything about it."

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ADDENDA.

Dr. COPLAND, F.R.S., Author of a Medical Dictionary, says,

"The habit of smoking tobacco has given rise to the following ill effects, which have come under my observation in numerous instances and that of all the medical men with whom I am acquainted. Smoking weakens the digestive and assimilating functions, impairs the due elaboration of the chyle and of the blood, and prevents a healthy nutrition of the several structures of the body. Hence result, especially in young persons, an arrest of the growth of the body; low stature; a pallid and sallow hue of the surface; an insufficient and an unhealthy supply of blood, and weak bodily powers. In persons more advanced in life, these effects, although longer in making their appearance, supervene at last, and with a celerity in proportion to the extent to which this vile habit is carried."

The late Dr. HODGKIN, Bedford Square, London, says,

„ Hundreds of persons have passed under my examination as applicants for assurance on their lives, and consequently, imagining themselves to be in a fair state of health, warranting their acceptance; and amongst these I have not unfrequently met with such a state of general depression of the system, feeble circulation, and nervous irritability, as rendered it necessary to reject or defer the proposals, and which I could only attribute to the habits of the parties in relation to tobacco."

The late Dr. CONQUEST, Finsbury Square, London, says,

"As a medical man, I have no hesitation in affirming my conviction, based on long and extensive observation, that the use of snuff and tobacco must be classed with the worst evils existing in society. I doubt, if, under any circumstances, the human constitution is benefited by their employment; and language would fail me, were I to attempt to detail the bodily and mental diseases they produce. In my now lengthened medical life I have often seen the worst and most intractable forms of indigestion, and the most distressing and fatal cases of stomach and liver diseases, traceable to snuff and tobacco, and I am confident this poisonous weed produces every variety and degree of nervous derangement, from depression of spirits, to palsy, apoplexy, and insanity."

Dr. PIDDUCK, M.R.C.S., Montague Place, London, says,

"In no instance is the sin of the father more strikingly visited upon his children than the sin of tobacco smoking. The enervation, the hypochondriasis, the hysteria, the insanity, the dwarfish deformities, the consumption, the suffering lives and early deaths of children of inveterate smokers, bear ample testimoney to the feebleness and unsoundness of the constitution transmitted by this pernicious habit."

Dr. WEBSTER says,

At a meeting of the Medical and Chirurgical Society of London, on 2nd May, 1854, a paper was read, entitled, "Additional Remards on the Statistics and Morbid Anatomy of Mental Diseases," by Dr. Webster, wherein he cites, among the causes, the great use of tobacco, which opinion he supported by reference to the statistics of insanity in Germany. "Loss of memory takes place in an extraordinary degree in the smoker, more than in the drunkard, evidently from tobacco acting more on the brain than alcohol."

Mr. HIGGINBOTTOM, M.R.C.S., of Nottingham, says,

"After fifty years of most extensive and varied practice in my profession, I have come to the decision, that smoking is a main cause of ruining our young men, pauperising the working men, and rendering comparatively useless the best efforts of Ministers of Religion."

Mr. MARTIN, Sen., of Reigate, in addressing Medical Students, says:—

"My dear young Friends,—Permit me to address you in these terms, and to offer to your perusal the following observations:—You may be assured that smoking, although it may not immediately poison the smoker, yet it has a pernicious agency on the organs of digestion and assimilation—sends unhealthy blood to the brain and its morbid influences pervade the system; inducing various forms of dyspepsia and impairing the functions of the brain and spinal cord. Notwithstanding the argument, if it can be so called, as to the comparative injury of smoking in moderation, or in excess, a question of degree—why smoke at all? I affirm that no man is the wiser or better for smoking."

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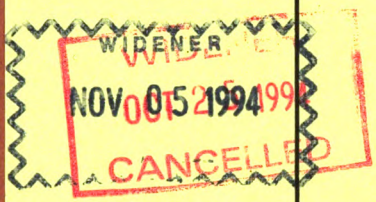

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